

What is claimed is:

1. A ferroelectric material in which variations in the refractive index are induced by irradiation with light at two different wavelengths, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966$ to 0.4995 .

2. The ferroelectric material according to claim 1, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4974$ to 0.4989 .

3. The ferroelectric material according to claim 1, wherein the concentration of protons contained in the lithium tantalate single crystal is such that the infrared absorption coefficient in the [OH] stretching mode falls within a range of 0 cm^{-1} to 0.15 cm^{-1} (0 cm^{-1} and 0.15 cm^{-1} are included in the range).

4. A two-color holographic recording medium obtained using a ferroelectric material in which variations in the refractive index are induced by irradiation with light at two different wavelengths, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966$ to 0.4995 .

5. The two-color holographic recording medium according to claim 4, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4974$ to 0.4989 .

6. The two-color holographic recording medium according to claim 4, wherein the concentration of protons contained in the lithium tantalate single crystal is such that the infrared absorption coefficient in the [OH] stretching mode falls within a range of 0 cm^{-1} to 0.15 cm^{-1} (0 cm^{-1} and 0.15 cm^{-1} are included in the range).

7. A wavelength selection filter obtained using a ferroelectric material in which variations in the refractive index are induced by irradiation with light at two different wavelengths, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4966$ to 0.4995 ; and the ferroelectric material has at least one refractive index grating.

8. The wavelength selection filter according to claim 7, wherein the ferroelectric material comprises two or more refractive index lattices; and

the two or more refractive index lattices have respectively different interstitial pitches.

9. The wavelength selection filter according to claim 7, wherein the ferroelectric material is a lithium tantalate single crystal with the composition $\text{Li}_2\text{O}/(\text{Li}_2\text{O} + \text{Ta}_2\text{O}_5) = 0.4974$ to 0.4989 .

10. The wavelength selection filter according to claim 7, wherein the concentration of protons contained in the lithium tantalate single crystal is such that the infrared absorption coefficient in the [OH] stretching mode

falls within a range of 0 cm^{-1} to 0.15 cm^{-1} (0 cm^{-1} and 0.15 cm^{-1} are included in the range).